

PROCEEDINGS
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A NEW SPECIES OF *TYPHLOPS* (SERPENTES:
TYPHLOPIDAE) FROM HISPANIOLA

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Since the description (Thomas, 1965) of *Typhlops syntherus*, it has become evident to me that the Hispaniolan *Typhlops*, then regarded as *T. lumbricalis* Linnaeus, actually comprises two species. One of these, known from only a few localities in eastern Hispaniola but better represented from the Cul de Sac Plain of Haiti, differs in no major morphological feature, other than size, from the Cuban and Bahamian populations known as *Typhlops lumbricalis*. The other species, undescribed, appears to be restricted to the southwestern quadrant of Hispaniola.

Aside from three old specimens, the hypodigm of this undescribed species was obtained through the sponsorship and efforts of Albert Schwartz (ASFS designates the Albert Schwartz Field Series) and of Ernest E. Williams of the Museum of Comparative Zoology (MCZ). To Albert Schwartz I am greatly indebted for his support of my own efforts in the field and laboratory leading to the discovery of this new form. I also thank Lewis D. Ober, who generously provided some crucial specimens of *T. lumbricalis* (LDO designates the Lewis D. Ober private collection) and Douglas A. Rossman for his careful critical reading of the manuscript. For the loan of specimens used in this study I wish to thank Richard G. Zweifel and George R. Foley of the American Museum of Natural History (AMNH), Edmond G. Malnate of the Academy of Natural Sciences of Philadelphia (ANSP), Alice G. C. Grandison of the British Museum (Natural History) (BMNH), Neil D. Richmond and Clarence J. McCoy of the Carnegie



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The undescribed species is the sixth known species of *Typhlops* from Hispaniola; in reference to this fact I propose the name:

***Typhlops hectus* new species**

Holotype: MCZ 81149, taken at Martineau, ca. 9 km (airline) W Jérémie, Dépt. du Sud, Haiti, 12 March 1966 by Richard Thomas. Original number ASFS V9145.

Paratypes: HAITI. DÉPT. DU SUD: ASFS V9276-77, ca. 10 km WSW Moron, 475 m, 13 March 1966, R. Thomas; MCZ 74907-14, Marfranc near Jérémie, 27 December 1966, D. Hill and F. Vuilleumier; MCZ 64779, Carrefour Sanon near Jérémie, 14 December 1960, Luc and George Whiteman; ASFS V9147, Jérémie, 12 March 1966, native; ASFS V9495, Jérémie, 19 March 1966, native; ASFS V9601-12, Jérémie, 21 March 1966, natives; ASFS V25284, beach area within 1 km E Jérémie, 1 July 1971, Elie Joseph; ASFS V9389, 2 km SE Jérémie, 15 March 1966, native; MCZ 64773-78, *Place Nègre near Jérémie, 14-15 December 1960, Luc and George Whiteman; MCZ 70044, *La Source near Jérémie, December 1962, George Whiteman; MCZ 64780, *Laye near Jérémie, 14-15 December 1960, Luc and George Whiteman; MCZ 70045, Tosia near (about 33 km SW) Jérémie, December 1962; ASFS V9348, ca. 5 km (airline) SE Marché Léon, 670 m, 15 March 1966, R. Thomas; ASFS V9514-16, ca. 7.5 km (airline) SSE Roseaux, est. 2 km W La Bastille, 20 March 1966, R. Thomas; ASFS V9519, ca. 3 km (airline) SW Corail, 20 March 1966, R. Thomas; MCZ 25552, Ile Grande Cayemite; ASFS V26459, Ile Grande Cayemite, vicinity of Anse à Macon, 6 August 1971, native; ASFS X3070, Camp Perrin, 26 July 1962, native; USNM 157928-29, ASFS X3141-52, Camp Perrin, 29 July 1962, native; MCZ R-123873-74, Marceline; ASFS V26251-53, Fond des Nègres, 1 August 1971, R. Thomas; ASFS V26223, Paillant, 548 m, 31 July 1971, R. Thomas; MCZ 66323-24, CM 37953, *Butête near Miragoâne, 16 August 1961, Luc Whiteman; MCZ 66325, *Mingrette near Miragoâne, August 1961, Luc Whiteman; MCZ 66326-28, CM 37921-22, *Pemel near Miragoâne, 14 August 1961, Luc Whiteman. DÉPT. DE L'OUEST: ASFS V9821, ca. 2.4 km S Trouin, 243 m, 29 March 1966, R. Thomas; ASFS V8370-71, ca.

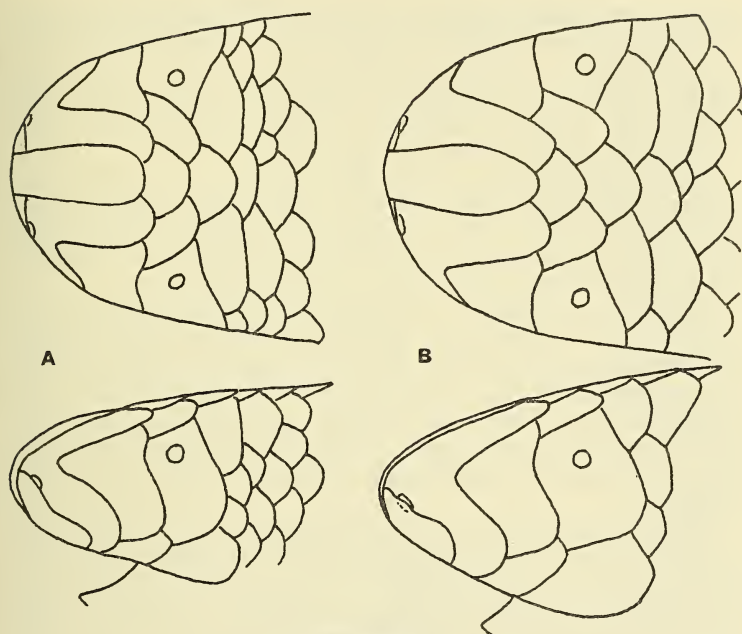


FIG. 1. A, dorsal and lateral views of the head of ASFS V9604 (*T. hectus*); B, dorsal and lateral views of the head of ASFS V8395 (*T. lumbricalis*). Bar equals one mm.

7 km (airline) W Pétionville, N versant Morne l'Hôpital, ca. 609 m, 1 March 1966, R. Thomas; ASFS V8375, 9.6 km (road) W Pétionville, N versant Morne l'Hôpital, 822 m, 1 March 1966, native.

Non-paratypic specimens: HAITI. DÉPT. DE L'OUEST: ASFS V8295-96, ca. 7 km SE Mirebalais; ASFS V26542-48, V26577, 3.5 km SW Lascahobas, 274 m, 15 August 1971, native. REPÚBLICA DOMINICANA. PROV. SAN JUAN: ASFS V512-15, Río Arriba del Norte; ASFS V21567, 4 km N Sabaneta; ASFS V396-98, 7 km W Vallejuelo, 792 m. PROV. SAN RAFAEL: ASFS V21570-71, 1 km E Hondo Valle. PROV. INDEPENDENCIA: ASFS V20924, 15 km W Puerto Escondido; AMNH 41265-66, Duverge. PROV. BARAHONA: ASFS V30493, El Iguito, 2.6 km NE Fondo Negro; ASFS V35641, El Iguito, 3.1 km NE Fondo Negro; AMNH 51496, above Delmonte's Finca (near Barahona).

Localities indicated with an asterisk are not mapped; it is not certain whether the unmapped localities reckoned from Miragoâne are in the Dépt. du Sud or the Dépt. de l'Ouest.

Definition: A species of *Typhlops* having the preocular in contact with upper labial three (as opposed to contacting upper labials two and

three), two postoculars, a primary scale row number of 20 with reduction to 18 rows absent or occurring far posteriorly, and high mid-dorsal scale counts (284–328). Further distinguished by a clavate rostral shape (narrow, posteriorly expanded and blunt); the posterior nasals being roughly parallel sided, not divergent in dorsal aspect; and the preocular being sharply pointed anteriorly (Fig. 1).

Distribution (Fig. 2): Southwestern Hispaniola south of the Cul de Sac-Valle de Neiba Plain (except for the Barahona Peninsula) and the southwestern part of the north island (that portion of Hispaniola north of the Cul de Sac-Valle de Neiba Plain). One certain record for the Cul de Sac-Valle de Neiba Plain (extreme eastern part).

Description of holotype: Total length 192 mm, tail length 4.6 mm; 307 mid-dorsal scales between rostral and caudal spine, 295 midventral scales posterior to mental and including last scale of anal flap; 20 scale rows anteriorly, reducing to 19 rows at ventral scale 277 and to 18 at ventral scale 279 (with some redividing and re-fusing of scale rows before final fusion); 2 postoculars and one parietal on each side. Coloration pale gray dorsally, fading out on lower sides to become unpigmented ventrally.

Variation: The paratypes vary in total length from 95 to 230 mm and in mid-dorsal scale counts from 284 to 324. The modal primary scale row number is 20 reducing to 18 at the level of midventral scale 194 to 288; 46 specimens (60 percent) have no reduction. A number of specimens show reduction abnormalities shortly anterior to the vent: the first reduction step (20 to 19 rows) may be made without the final (19 to 18 rows), or irregular fusion and dividing of the median and paramedian ventral rows may occur. Three specimens have 22 scale rows initially with reduction to 20 rows occurring from 35 to 131 ventrals posterior to the mental. A few have short regions of 22 scale rows anteriorly due to irregular division and fusion, and a few others have 21 scale rows for a short distance in the neck region. There are from 5 to 15 (mode 8–10) fewer ventrals than middorsals. Postoculars are 2/2 (66 specimens), 2/3 or 3/2 (2), or 3/3 (1); parietals are 1/1 (16), 1/2 or 2/1 (20), or 2/2 (25). Coloration is pale gray to tan but varies somewhat in intensity of pigmentation. The coloration may be bicolor with the transition from the pigmented dorsum to the unpigmented venter occurring in a narrow mid-lateral zone of one or two scale rows; or the pigmentation may extend well onto the venter, occasional individuals having almost entirely pigmented venters with irregular non-pigmented areas occurring along the midventral region. In the more extensively pigmented individuals the intensity of pigmentation gradually decreases ventrally. Some bicolor specimens have an indistinct collar of dark pigment across the throat.

Twenty-four specimens from several scattered localities north of the Cul de Sac-Valle de Neiba Plain plus six from the eastern portion of the south island and the Valle de Neiba agree with *Typhlops hectus* in the configuration of the rostral-nasal complex, in having pointed preoculars, high longitudinal scale counts, and in having the reduction from 20 to 18

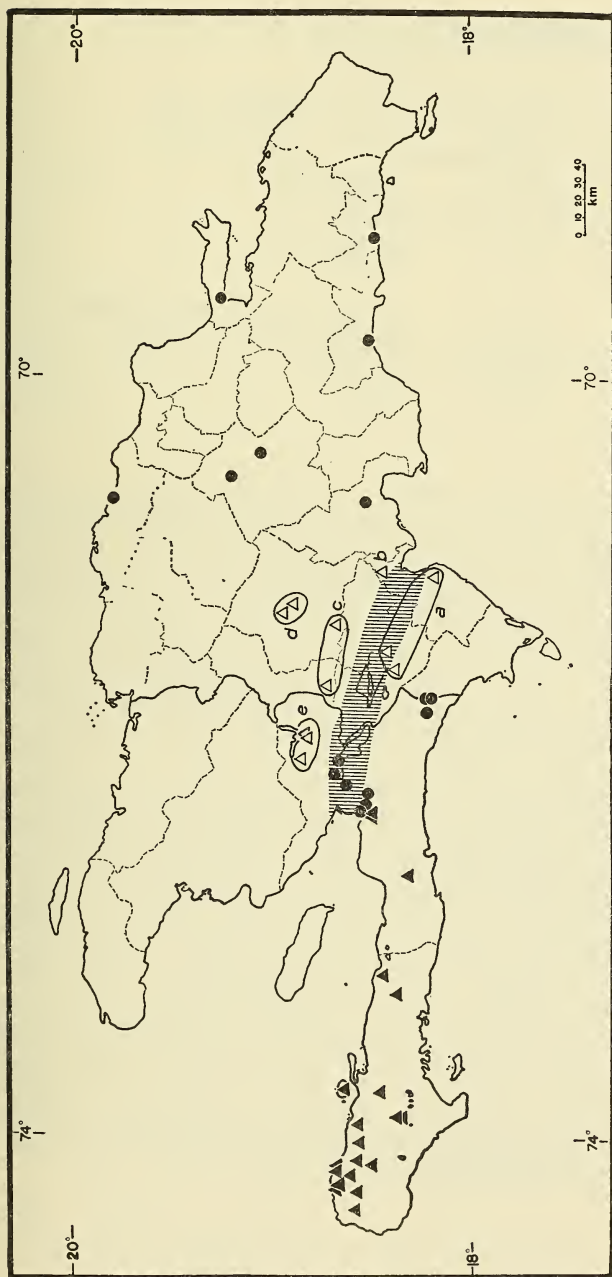


FIG. 2. Map showing known distribution of *T. lumbricalis* (solid circles) in Hispaniola and *T. hectus*. Solid triangles indicate localities for paratyptic *hectus*; hollow triangles, localities for non-paratyptic *hectus*; letters a-e, samples of non-paratyptic *hectus* graphed in Fig. 3. The vertical hatching indicates the approximate limits of the Cul de Sac-Valle de Neiba Plain.

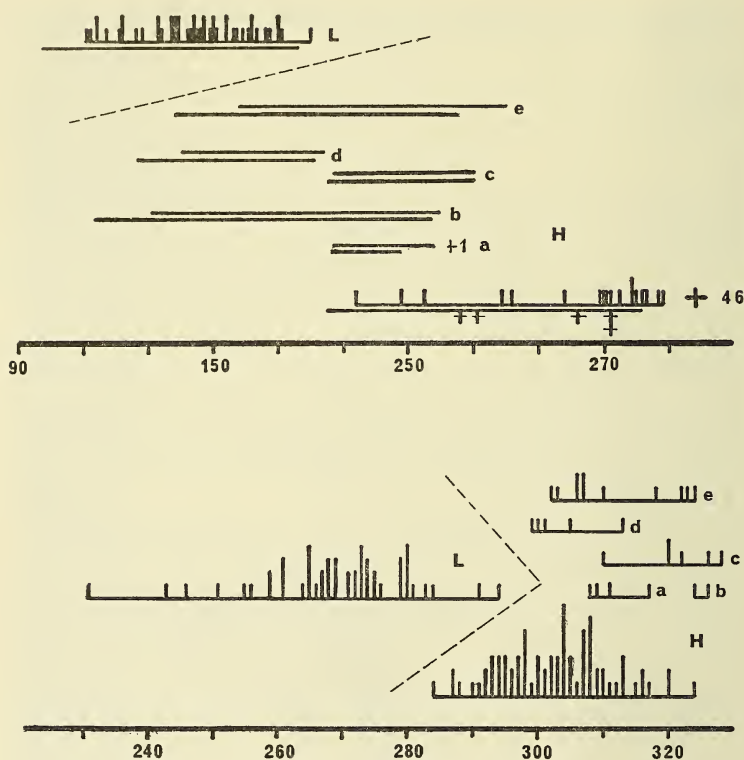


FIG. 3. Upper graph: Variation in reduction level (ventral scales posterior to mental). Range only is shown for samples of non-paratyptic *hectus* (a-e); line histograms (smallest vertical unit represents one individual) are given for *lumbricalis* (L) and paratyptic *hectus*. The uppermost horizontal line of a pair indicates range in level of final reduction step (19 to 18 scale rows); the lowermost line of a pair indicates the range in initial reduction step (18 to 19 rows). Crosses on lower range line for paratyptic *hectus* indicate specimens that reduce to 19 but not to 18 scale rows; + 46 and + 1 indicate specimens that do not reduce from 20 scale rows. Lower graph: Line histograms showing variation in mid-dorsal scale counts of *T. lumbricalis* (L) and *T. hectus* (H); the smallest vertical unit represents one individual. Histograms a-e show counts for geographic samples of non-paratyptic *hectus* indicated in Fig. 2. The dashed line in both upper and lower parts separates graphs for *lumbricalis* and *hectus*.

TABLE 1. Meristic and color variation among the Hispaniolan species of *Typhlops*.

	Pre-ocular number	Post-ocular number	Scale rows	Middorsal scales	Coloration
<i>lumbricalis</i>	1	1-2	20-18	231-294	bicolor
<i>hectus</i>	1	2	20-20 20-18	284-328	bicolor to unicolor
<i>pusillus</i>	2	2	20-18	252-315	bicolor to unicolor
<i>syntherus</i>	1	2	22-22	304-353	bicolor
<i>sulcatus</i>	1	1	20-20	400-452	bicolor
<i>capitulatus</i>	1	2	20-20	358-418	unicolor

scale rows situated relatively far posteriorly. Despite an average far posterior reduction level, these specimens are somewhat heterogeneous in this respect (Fig. 3). The four from the eastern south island are most like paratypic *hectus* in reducing far posteriorly (one does not reduce). Of those from the north island, the specimens from the northern Valle de San Juan reduce to 18 rows farther anteriorly than those in any other sample and are therefore least like paratypic *hectus* in this respect. The sample from the vicinity of Lascahobas broadly overlaps the other samples of both paratypic and non-paratypic *hectus* in reduction level, and the three specimens from the Hondo Valle and Vallejuelo region are intermediate. One of the two specimens from El Iguito in the eastern Valle de Neiba reduces far anteriorly and the other far posteriorly. Some of the samples of non-paratypic *hectus* are more heavily pigmented than paratypic *hectus*, and all have higher average mid-dorsal counts (Fig. 3). Two specimens of non-paratypic *T. hectus* have divided preoculars unilaterally (AMNH 41266 from Duvergé and ASFS V398 from 7 km NW Vallejuelo); AMNH 41265 from Duvergé has an incompletely divided preocular on one side; ASFS V396 and V398 (Vallejuelo) and V513 (Río Arriba) have indications of a groove on one preocular. Divided preoculars characterize *Typhlops pusillus* Barbour, a widespread Hispaniolan species. The significance of divided preoculars in specimens of *T. hectus* will be discussed in a comprehensive study of Antillean *Typhlops*.

Because of the isolation, heterogeneity in reduction level, and divergence of these eastern and northern samples from the balance of the specimens of *T. hectus*, I have not designated them as paratypes. It is hoped that the variation in these populations will be elucidated by more comprehensive sampling.

Comparisons: *Typhlops hectus* is readily distinguishable from four of the other Hispaniolan species on rather gross morphological features

(Table 1). From *lumbricalis*, however, *hectus* cannot be absolutely distinguished on the basis of meristic features. There is a small amount of overlap between the two species in mid-dorsal counts (Fig. 3). In reduction level *lumbricalis* and paratypic *hectus* are almost completely separable; the non-paratypic samples are intermediate. The differences in head scale shape are subtle; some specimens are difficult to distinguish on head scale shape alone. In *hectus* the rostral is narrow in dorsal view, almost parallel sided but with a slight terminal expansion; in *lumbricalis* it may be narrow but is usually broader than in *hectus*, and the widest point is near the middle (Fig. 1). The preocular in *hectus* is more sharply pointed (the anterior edges form a smaller angle) than that of *lumbricalis*. A correlate of the low preocular angle in *hectus* is that the lateral edges of the postnasals are more nearly parallel with one another and with the lateral edges of the rostral, whereas they are divergent in *lumbricalis* (Fig. 1). In addition, the Cul de Sac *lumbricalis* typically have four parietals (32 of 37); only 25 of 61 paratypic *hectus* have four parietals. Ten of 11 of the eastern Hispaniolan *lumbricalis* have the first parietal (only two specimens have paired parietals and these only unilaterally) greatly elongated and fused with the upper postocular, a condition not found either in *hectus* or other *lumbricalis*. *T. lumbricalis* also is a larger, stouter species than *T. hectus*.

Although *lumbricalis* and *hectus* have partially overlapping geographic ranges, their microsympatry is not established. At no time have the two been taken together, despite the collection of fair numbers of *lumbricalis* (and three other species) from the Cul de Sac. Microsympatry between *lumbricalis* and *hectus* will probably be most easily demonstrated in the area between the Cul de Sac and Pétionville.

Comparative material: Typhlops lumbricalis.—HAITI, DÉPT. DE L'OUEST: MCZ 62637, 81150, CM 38886, ASFS V8185-86, Manneville; USNM 117270-72, 117275, ASFS V24346, Trou Caiman; BM 1948. 1.6.63-64 (2), Pont Beudet; USNM 75893, 123792, MCZ 51426, 62631-33, Port au Prince; MCZ 65812, near Port au Prince; ASFS V8394-97, Château Blond, 6.4 km NE Pétionville, 160 m; ASFS V22440-44, LDO 7-6464-69, 4.8 km N Pétionville; ASFS V24346, 1.6 km NW Pétionville; MCZ 68571, Colombier near (22 km E) Saltrou. REPÚBLICA DOMINICANA, PROV. PEDERNALES: ASFS V2604, 11 km SW Los Arroyos, 443 m; ASFS V2708, 21 km N Pedernales, 243 m. PROV. AZUA: ASFS X8047, 2.9 km W, thence 16.4 km N, Azua. PROV. SAN PEDRO DE MACORIS: AMNH 13630, San Pedro de Macoris. PROV. LA VEGA: ASFS V35897-900, V35904-05, 1 km W Jayaco, 274 m; ASFS V14143, 4 km S La Vega. PROV. SAMANÁ: USNM 55298, Sanchez. PROV. PUERTO PLATA: USNM 10276, Puerto Plata.

LITERATURE CITED

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